



## Objectives

Literature review of cases founded about the effects of the drugs residues used in veterinary medicine, and how they affected in the vultures population on the Indian subcontinent and how this situation could affect the Europe vultures population. Furthermore, this project describes the diferent measures to prevent or reduce the most dangerous residues

## Background in the Indian subcontinent

Since the 1990s, the populations of vultures in the Indian subcontinent have collapsed, reducing its population to almost extinction (95%). Investigations have found the only reason of this decline of the population of vultures in South Asia (India, Nepal and Pakistan) it seems to be the veterinary use of diclofenac, a non-steroidal anti-inflammatory (NSAID) widely administred to herds. Diclofenac poisoning occurs when these wild vultures feed of corpses of treated animals. Diclofenac causes kidney disease

### European population

Spain hosts >95% of the European population of vultures



**Griffon vulture**  
(*Gyps fulvus*)  
>25.000 pairs



**Bearded vulture**  
(*Gypaetus barbatus*)  
125 pairs



**Egyptian vulture**  
(*Neophron percnopterus*)  
1.600 pairs



**Black vultures**  
(*Aegypius monachus*)  
2.000 pairs

## Drugs, effects and causes of lesions

| Drugs                   | Effects and Lesions   |
|-------------------------|---|
| Anti-inflammatorys      |   |
| Diclofenac              | Renal failure<br>and visceral gout  |
| Ketoprofen              |   |
| Nimesulide              |   |
| Flunixin                |   |
| Antibiotic              |   |
| Quinolones              | Very low concentration →<br>No toxic effect   |
| Antiparasitics          |   |
| Fenbendazol             | <ul style="list-style-type: none"><li>• Intestinal cell necrosis</li><li>• Leukopenia</li></ul> |
| Dianizon and Permethrin | Could affect cerebral<br>acetylcholinesterase and<br>thermoregulation                           |

## Meloxicam

Share anti-inflammatory, analgesic and antipyretic with diclofenac, but has a higher selectivity for COX 2, decreasing the ulcerogènesis and renal failure

## Solutions

- ✓ **Anti-inflammatory:** Prohibit diclofenac and replace it with meloxicam
- ✓ **Antibiotics:** Do not feed with corpses without waiting of the period of suppression
- ✓ **Antiparasitic:** Wash the tarsi and metatarsals before feeding the vultures

## Conclusions

- ✓ The most dangerous and lethal residue is diclofenac
- ✓ Request the European Commission to withdraw it and replace it with meloxicam
- ✓ They are starting to do further studies to find other residues of drugs such as antibiotics and anti-parasitic, but the results are inconclusive